DEPARTMENT OF WATER RESOURCES

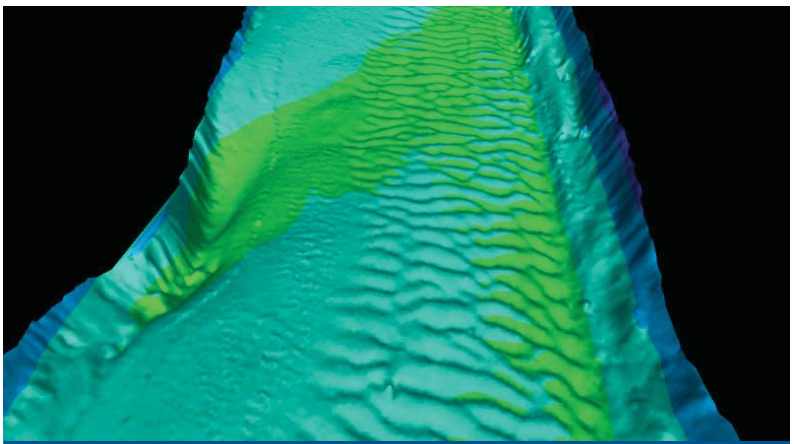
LEVEE EVALUATION PROGRAM
Bathymetric Survey

Winter 2008

Survey vessel collecting data on the Sacramento River, with sonar instrument deployed underwater (center).

Underwater bathymetric surveys are explorations conducted using special multibeam sonar installed on custom boats. These underwater surveys provide detailed topographic data of the riverbed and riverbanks that form the base of the levee systems. Underwater erosion of the riverbanks, which is not clearly visible from above the river surface, are revealed by the highly sensitive multibeam sonar imagery.

Bathymetric surveys were conducted from December 2007 to January 2008 along underwater sections of levees on portions of the Sacramento, American, San Joaquin, and Calaveras Rivers. Bathymetric experts used a shallow-draft boat capable of operating in shallow water. Sonar data was collected along the levees as near to the water's edge as possible, providing an image of the levees' underwater structure that cannot be obtained by conventional land topographic methods.



Example result of a Multibeam Hydrographic Survey of the Freeport area of the Sacramento River. Similar surveys have been conducted over rivers and canals along the DWR urban levee system. These data will be combined with above-ground data to help give engineers a comprehensive "picture" of the levee surfaces.

The survey's ultimate purpose is to provide bathymetric data to supplement the above-water topographic data collected during previous aerial surveys. Together, these data will assist in the geotechnical evaluation of the levees and the overall stability of the flood control system.

For more information, visit: www.water.ca.gov/levees/evaluation/bathy.cfm

Frequently Asked Questions

What is "multibeam sonar"?

Multibeam sonar uses multiple acoustic, fan-shaped pulses that reflect back off the levee bank and river bottom, providing data used to accurately map the topography of the underwater channels. Data will be utilized along with other evaluation methods and tools to help assess levee stability and underseepage, and identify ongoing erosion and potential stability problem areas.

How does multibeam sonar work?

When the beams of the multibeam sonar reflect off underwater river, the returning acoustic signals are translated and processed to provide a graphic representation of the river bottom and levee bank, which then compliments the land survey and geotechnical evaluations.

Is multibeam sonar a safe technology?

Multibeam sonar technology has been used safely for years and has proven useful for scientists and engineers seeking accurate and detailed mapping of underwater areas.

How does multibeam sonar affect fish and other aquatic organisms?

Multibeam sonar does not negatively impact fish and other aquatic organisms. In fact, the technology has been widely used to map Marine Protected Areas. Moreover, because this advanced technology is capable of gathering data in less time, there is less intrusion on aquatic environments.

For further information, please contact:

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